

# The Keystone

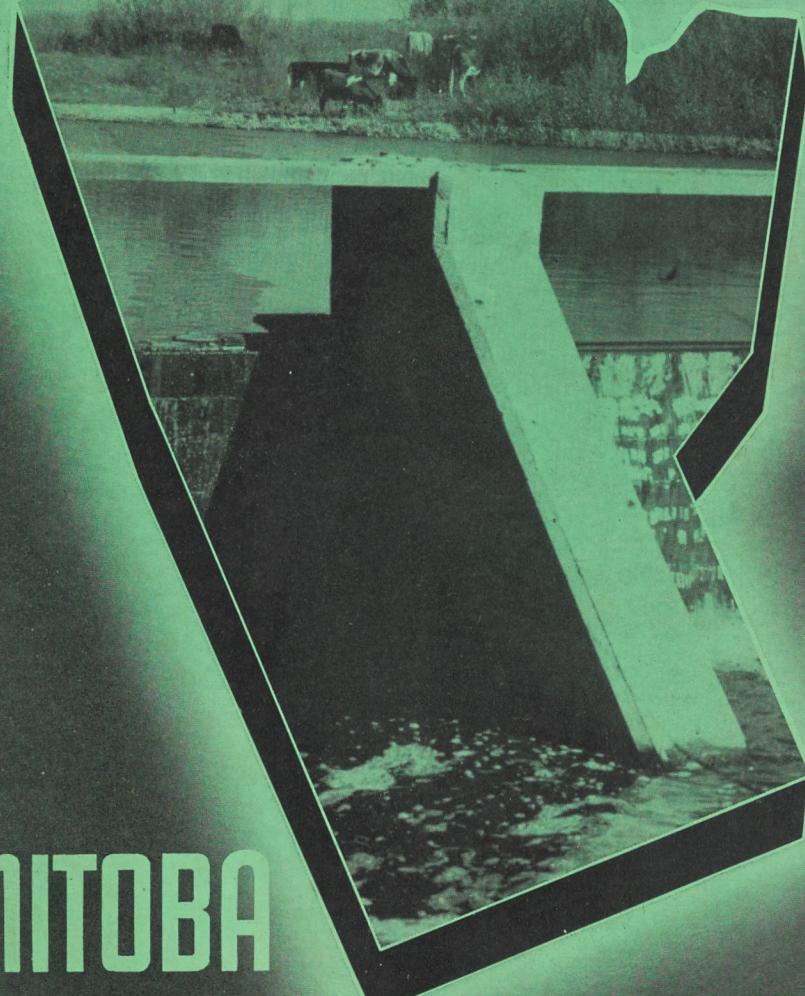
*Province*

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## MANITOBA

• Inside the Rim of Adventure •

# An Aggressive Water Policy

*Extract from a speech made in the Manitoba Legislative Assembly on Friday, March 6, 1942, by the Honourable John S. McDiarmid, Minister of Mines and Natural Resources for the Province of Manitoba.*

"It was in 1936 that an aggressive policy of water conservation was put into effect in both the southern and northern portions of Manitoba. The policy put into effect in the southern portion was the outcome of the Prairie Farm Rehabilitation Act which was passed by the Parliament of Canada in 1935. This Act was predicated upon complete Dominion-Provincial co-operation and was designed, among other things, to establish secure sources of water-supply for agricultural purposes. The policy adopted for the northern portion of the Province was designed to rehabilitate the fur industry and to provide improved breeding grounds for waterfowl, to reduce fire losses, and to secure the livelihood of hundreds of families in the outlying parts of the Province."

"Few people have a full appreciation of the immense volume of work that has been handled under the Prairie Farm Rehabilitation Act in southern Manitoba and under the

Department's fur and wild life rehabilitation policy in the North."

"While the Prairie Farm Rehabilitation Act was passed in 1935, it was 1936 before the work was fully organized and put under way. Since that time as a result of the closest co-operation between Dominion and Provincial governments, municipalities and farmers, a very large programme has been successfully completed."

"For every week that has elapsed since 1936, 17 water development projects have been completed in southern Manitoba."

"For every day that has elapsed since 1936, water control has been established on an additional 100 acres in northern Manitoba."

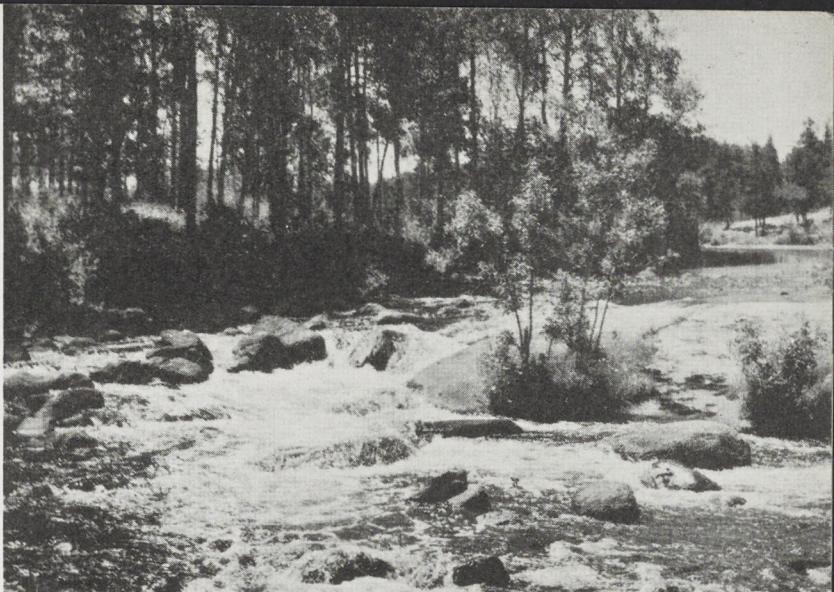
"For every hour that has elapsed since 1936, over 20 acres of northern marsh and bush lands have been included in fur and wild life rehabilitation projects."

"And we have just started."

# *Stream and Torrent*

LONG ago much of what is now southern Manitoba was covered by the waters of ancient Lake Agassiz. Today Lake Winnipeg, Lake Manitoba, Lake Winnipegosis, and Lake Dauphin, a truly great system of fresh-water lakes, lie in what were once the deeper portions of Lake Agassiz.

Today, as in the pre-historic times of Lake Agassiz, Manitoba's lakes and extensive river systems are dependent for their water supply upon an immense drainage area extending from Lake Superior on the east, to the Rocky Mountains on the west; and from the headwaters of the Mississippi on the south to the headwaters of the MacKenzie River on the north. From the provinces to the west, Manitoba receives the waters of the Cochrane, the Reindeer and the Churchill rivers. Much of the flow of the Saskatchewan River which empties into Lake Winnipeg from Cedar Lake originates on the eastern slopes of the Rocky Mountains. The Carrot River, the headwaters of which are in Saskatchewan, joins the Saskatchewan River near The Pas. The Assiniboine also rises in Saskatchewan and joins the Red River at Winnipeg. The Souris, the Pembina and the Red



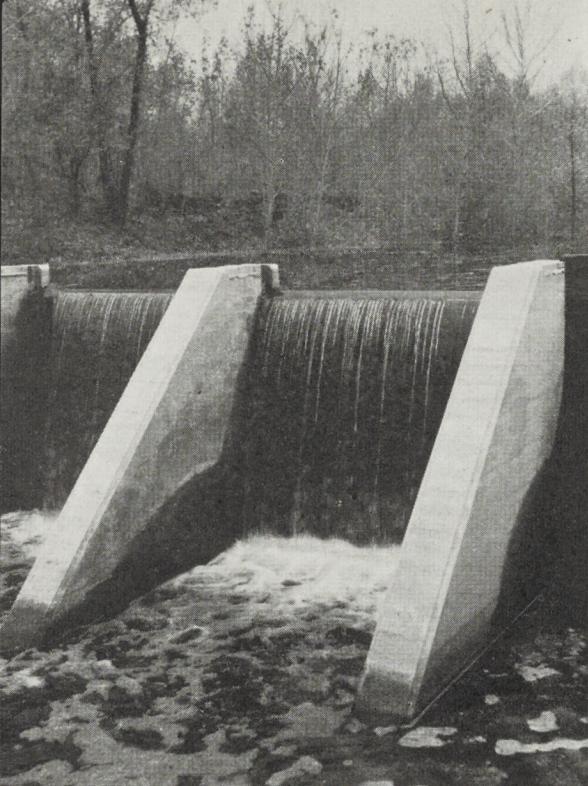
are all international rivers and enter Manitoba from North Dakota and Minnesota. The Winnipeg River rises in Minnesota and northwestern Ontario, and flows into Lake Winnipeg near Pine Falls. In Ontario also are the headwaters of the Berens, the Gods and the Hayes rivers. The former empties into Lake Winnipeg, while the latter two join to reach Hudson Bay, as the Hayes River, at York Factory.

In addition to the better known lakes and rivers of southern Manitoba there are literally tens of thousands of beautiful lakes and streams in the northern part of the province which make up the Seal, the Churchill, the Nelson, the Gods and Hayes river systems.

A very large proportion of the water which is available in Manitoba's lakes and rivers originates from melting snow. It is at flood for a very short period. The cardinal principle of water conservation on Manitoba's rivers or streams is to store water during flood periods so that it may be released to replenish the flow during low water periods later on. Whether it be a minor tributary—a mere swale across a farmer's pasture or one of the continent's greater rivers such as the Saskatchewan or the Winnipeg, our streams can be put to greater use for any of their varied purposes under a sound policy of water conservation. This the people of Manitoba are striving to do.

Stream or torrent—both have their uses and by conservation and development the uses of both can be, and are being multiplied.





On the Morris River at Carman.

## Water Conservation ...for Agriculture

IN the years immediately preceding 1935 drought had become an acute problem in the entire "Great Plains" region of North America. Precipitation fell far below previous averages. Streams that had once been regarded as reliable sources of water carried only tiny fractions of their former flows. Lakes lowered to unprecedented levels, and ponds and marshes became parched and barren. With the lowering of ground water tables, wells went dry. Farmers throughout this entire region suffered a series of crop failures. Livestock, which had been an important source of farm income, were disposed of at fire sale prices. Fertile prairie soils commenced to drift and many farms were left without sufficient water for domestic purposes.

In the three prairie provinces of Canada the drought problem was of such severity as to threaten the economic stability of large communities and to necessitate a re-orientation of prairie agriculture.

By 1935 the western drought problem had been recognized as constituting a national emergency, and its solution, in part, was recognized as a federal responsibility. In that year the Prairie Farm Rehabilitation Act was passed by the Parliament of Canada.

Throughout the ensuing years, the nation, the



Sheep Ranching—banks of the Assiniboine.



Typical harvest scene in Manitoba's early autumn.

provinces and the municipalities concerned commenced a carefully planned and well directed attack on drought. While the general programme took into consideration such matters as soil drifting, land classification, re-settlement, re-grassing, shelter belts and improved cultural practices, its most important phases had to do with water conservation.

Streams where possible must be kept alive and flowing the year around. Where wells have gone dry, other sources of farm water supply must be developed. Water courses that would under normal conditions carry the spring run-off quickly toward the sea and out of reach must be so developed as to conserve this life-giving water for use throughout the year. Lake levels must be restored, and the amenities of farm and rural communities improved. Wherever possible, water supplies should be developed from which gardens and feeds crops may be irrigated in dry years.

The Government's programme of water development in the agricultural areas of Manitoba was just nicely started in 1935. Experiments were conducted to determine the most reliable and economic type of water supply for various conditions. Organization work was carried out amongst the municipalities most concerned, in order that projects might be grouped so as to permit the use of heavy power machinery. Surveys were made from which the detailed plans could be prepared during the ensuing winter. A few projects were constructed, in order that the benefits of water development might be clearly demonstrated to farmers and municipal officials.

With each ensuing year after 1935 the tempo of water development in Manitoba's agricultural areas

increased. In 1935, 17 dugouts were completed on Manitoba farms. During 1936 this was increased to 529. In 1937, 650 more were added. During the summer of 1938, 1,400 dugouts were excavated, and by the end of 1939, 2,050 more Manitoba farmers had dugouts on their farms.

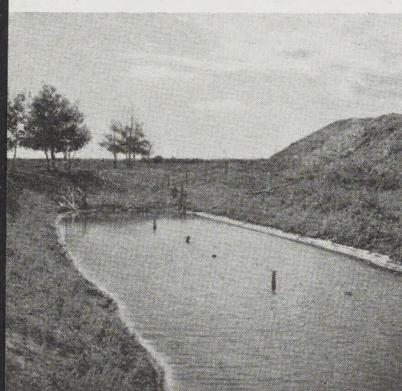
While the programme slackened off somewhat after the outbreak of war the seven-year programme extending from 1935 to 1941 inclusive, had succeeded in establishing secure sources of water supply on 5,196 Manitoba farms. In addition to the large number of dugouts completed in southern Manitoba, the seven-year programme had also seen the completion of 319 stockwater dams, 29 larger community dams, and eight irrigation projects.

Larger projects to provide reserve supplies of water for livestock and other uses have been constructed on a number of streams in the southern and western parts of the Province. These include dams of concrete, of rock-filled timber cribwork and of earthwork combined with concrete and timber.

Besides its more obvious purpose of providing secure sources of water supply for many thousands of Manitoba farms, the Government's water development policy has added considerably to the amenities of rural life. With the creation of artificial lakes, and the restoration of water levels on many others, country boys are once again learning to swim. Whole communities may now gather for a holiday picnic at beauty spots which a few years ago had little beauty. With the planting of sport fish in many of these restoration projects, the bamboo binder whip has once again become a spring and summer fishing pole.



One of Manitoba's many fine farmsteads.



Farm dugouts furnish secure water supply.

## Dugouts

THE trend in Manitoba farming is toward greater diversification, and a secure, adequate water supply on the farm at all times is today more essential than it has ever been. During periods of prolonged drought, the ground waters are gradually depleted and wells either fail altogether or give a too limited supply. The farmer must then find some other source of water for his livestock, and often even for household use, if his farm is to be successfully maintained as a home for himself and his family. It was necessary, during the drought period, to devise some means for the restoration of water supplies directly on the farms where they were needed.

The programme of water conservation set up by the Dominion Government under the authority of the Prairie Farm Rehabilitation Act in 1935 has proved to be the solution of this problem. Under this programme the Government has provided for the supplying of free engineering and



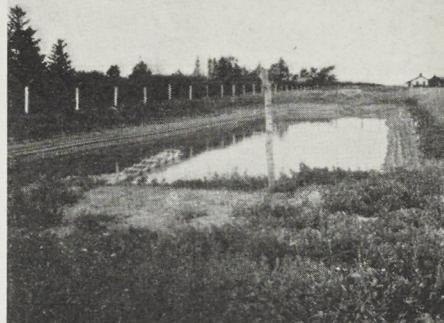
Typical prairie dugout being fenced to prevent pollution.

the payment of financial assistance for water development projects of all kinds for the benefit of agriculture in the three Prairie Provinces. Among these projects is the dugout, which has proven to be the most universally adaptable and generally satisfactory type for Manitoba farms.

A dugout is simply a miniature lake excavated below the natural surface of the ground. Its purpose is to receive and store surface run-off, particularly that resulting from the melting of the winter's snow. It must be large enough to maintain a permanent supply throughout the year, and it must, therefore, have a tributary drainage area of sufficient size to fill it each spring. It must be so located that there is no danger of undesirable pollution or of excessive silting, and it should be built with slopes that will remain firm when it is full of water. These conditions can be met on almost any farm.

Dugouts have many uses. First in importance, because of its general application, is their use for stock watering. Allied to this, particularly in those areas where wells have gone dry altogether, is their use in supplying water for household purposes. Next in importance, and finding greater favour from year to year, is their use for irrigating gardens and orchards. Finally there are such incidental uses as providing a source of supply for ice, and of water for fire protection.

The programme of water development, including as it did the provision for financial and engineering assistance, gave great impetus to the construction of farm water supply facilities at a time when drought conditions were becoming increasingly severe. As a result of whole-hearted co-operation on the part of federal and provincial governments, the municipal officials and farmers concerned, 5,196 dugouts have been completed in southern and western Manitoba.



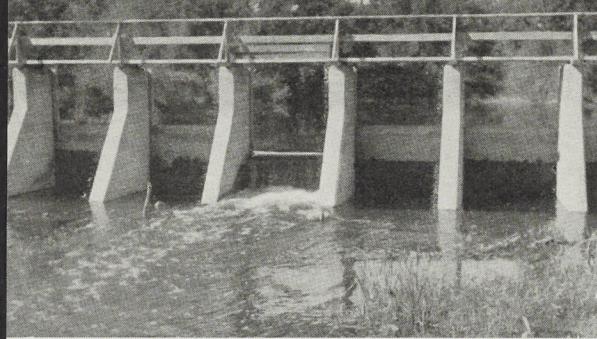
Dugout—Note shelter belt to catch winter snow.



Dugout—Well fenced.



Splendid example of dam and dugout co-ordination.



Concrete dam six miles south of Melita on the Souris River.



Stock-watering dam on one of Manitoba's rivers.

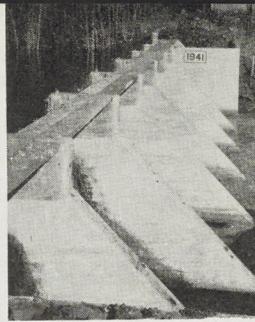


Bracken Dam. This dam was built by Ducks Unlimited on the Saskeram River.

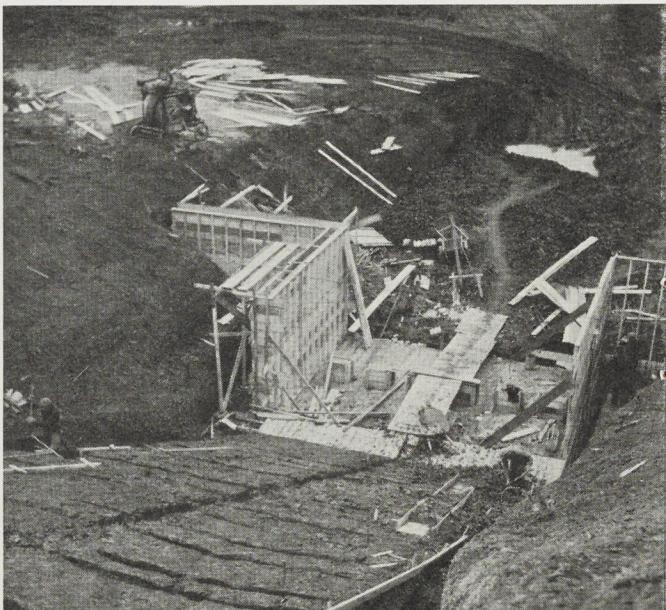
*Dams* DURING the present century with the increasing demands of larger towns and cities for improved water services and for increased power supply, many dams have been constructed. The large concrete dams on the Winnipeg River, for example, are essential parts of the huge power developments that supply electricity to Winnipeg, and the many other cities, towns and villages of southern Manitoba, as well as to the mines and paper mills of the North and East. One recently constructed dam is that spanning the Assiniboine River in the City of Brandon, built jointly by the City, the Province and the Dominion. It is designed not only to improve the City's water supply, but also to provide recreational opportunities for swimming, fishing and boating. The Brandon dam is built of concrete with stop-log control and may be opened to provide full discharging capacities during times of flood.

Dams for farm water supply had been built on many of the small streams and water courses of the province prior to the Central Government's water development programme, but it was this programme with its provisions for engineering and financial assistance at a time when drought conditions prevailed, that enabled the farmers to take full advantage of the opportunities offered to them. As a result, there have been constructed during the past six years more than three hundred dams to conserve water for the benefit of agriculture.

The primary purpose of these structures is to conserve water for the use of livestock, but a small number of the



On the LaSalle River at Sanford.



The Morden Dam under construction in 1941, since completed.



Spillway at Wawanesa.

projects are used for the irrigation of hay lands, gardens and orchards.

On the Souris River in southwestern Manitoba, where drought conditions had been particularly severe, six concrete regulating dams were constructed. These structures were so spaced as to transform a dry stream bed into an almost continuous lake nearly

80 miles in length. By the construction of three concrete dams on the La Salle River, another river channel which had been dry throughout a large part of each summer, was transformed into a narrow winding lake some 40 miles in length.

By constructing a dam at the outlet, Lake Killarney has now been restored to its former levels and is once again a summer holiday and week-end mecca for a very large community.

By the construction of a concrete dam at the outlet of Rock Lake, this beautiful body of water, which is eight miles long and nestles in a lovely wooded valley, has been restored to its former use and attractiveness.

One of the largest dams so far constructed for agricultural purposes has just recently been completed on Dead Horse Creek at Morden, and consists of a high earth embankment flanked by a gate-controlled concrete spillway.

Although primarily designed for agricultural benefits, these larger projects have many incidental uses, such as providing small lakes for recreational purposes, making available large areas for the cutting of ice, and improving the water supplies of the adjacent towns,

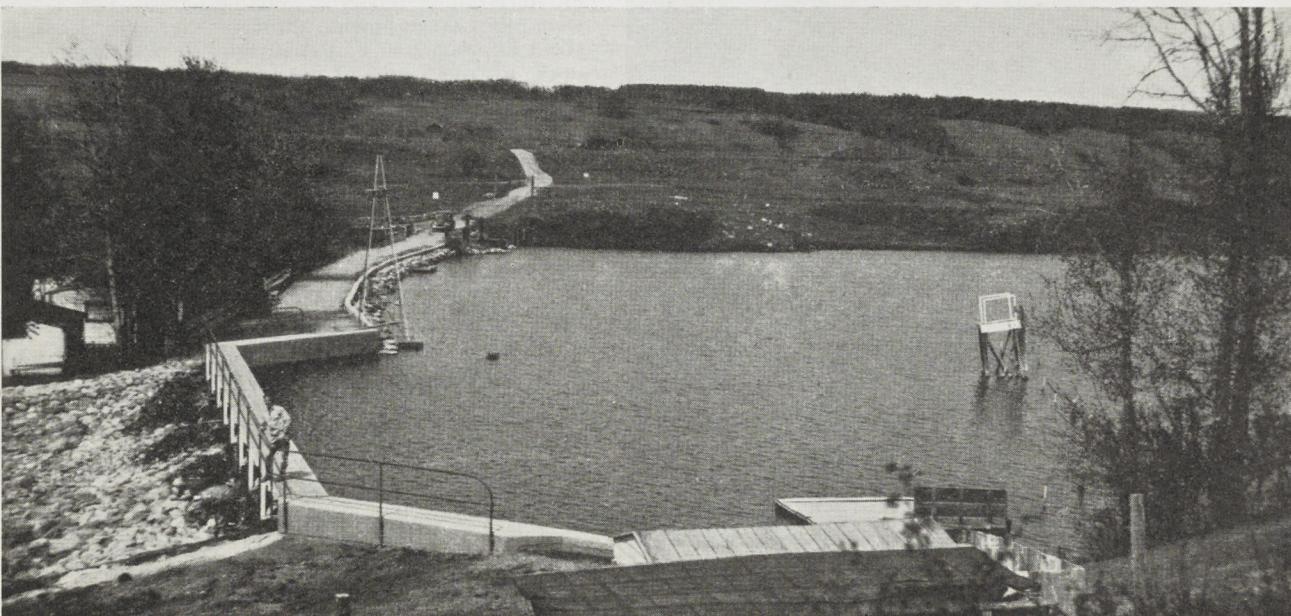


The Rock Lake dam gives new life to a popular resort area.

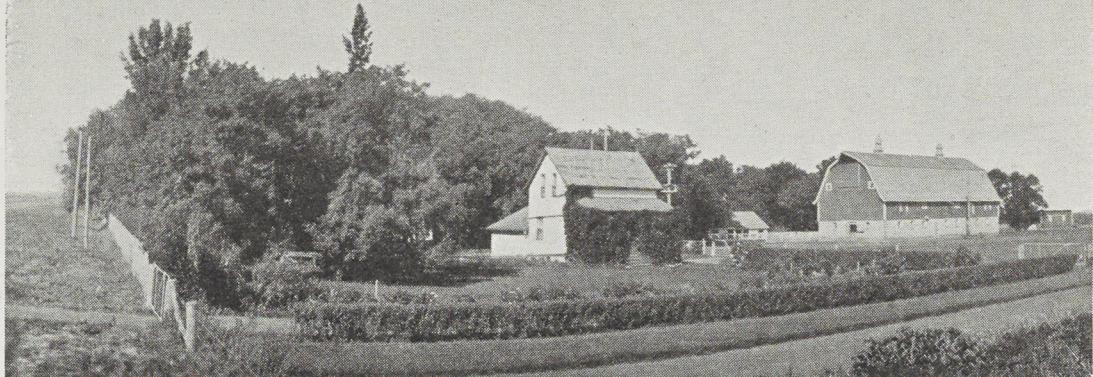


Napinka dam under construction, now completed and in operation.

villages and railways. A number of these artificial lakes have been stocked with sport fish and all provide resting places for wild waterfowl on their migrations to and from breeding grounds.



On the Birdtail River—Community dam at Birtle, Manitoba.



**Shelter Belts Increase the Value and Attractiveness of Manitoba Farms.**

## *Shelter Belts*

THE illustrations on this page will recall to many the cosy attractiveness of well treed Manitoba farmsteads. Thousands of progressive farmers throughout the province have planted shelter belts of trees about their farm buildings and along roads and driveways. They have thus

provided their homes with shelter, added beauty, and in many instances with a perpetual source of fuel wood. Shelter belts have taken on an added value during the recent drought years when it was particularly important to reduce wind velocities, soil drifting and excessive evaporation. Shelter belts

have also been of great value in collecting snow, the melting of which has served to fill dugouts, farm ponds and to restore ground water levels.

In order to stimulate interest in shelter belt planting and maintenance, as well as to assist farmers in obtaining satisfactory results from their efforts, the governments, both Federal and Provincial, have rendered valuable service. The Dominion Government through the Indian Head Experimental Farm has supplied planting stock to thousands of western farmers, and plantings at other Dominion Experimental Farms in Manitoba have given widespread and expert demonstration of tree culture.

Bulletins have been issued by the Manitoba Forest Service outlining the procedure and advantages of proper conservation methods. Pamphlets containing full instructions for planting trees, preservation treatment and care of production have been published from time to time.

The benefits of farm shelter belts have not been restricted to the individual farm concerned. Through increased beauty, improved cover for birds and wild life, whole communities have been made more attractive and land values correspondingly increased. The individual, the community, the province and the nation—all benefit from constructive work in conservation.



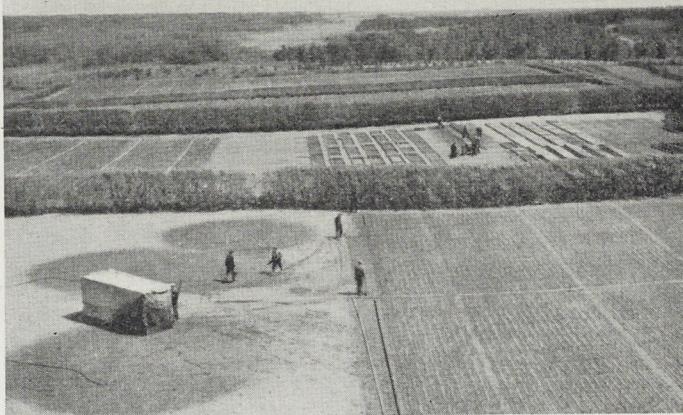
**Community Shelter Belt Alongside the Highway.**

# Forests

OVER forty per cent of Manitoba's land area is forested, in all a total of 93,000 square miles of forest assets. More than 30,000 square miles of this area is in production, and serves to supply the people of Manitoba with valuable construction materials, both in time of peace and in wartime.

The conservation of forests is closely associated with water conservation. Forests play an important part in stream and river control. The run-off from forested slopes or forest covered lands takes place at a much less rapid rate than from barren slopes or open country. It follows that streams which have their sources in wooded areas carry a much more uniform flow than would be the case if those headwater areas were denuded.

When the people of Manitoba through their Government and in turn through the Forest Service of the Department of Mines and Natural Resources, undertake to protect their forests, they are also

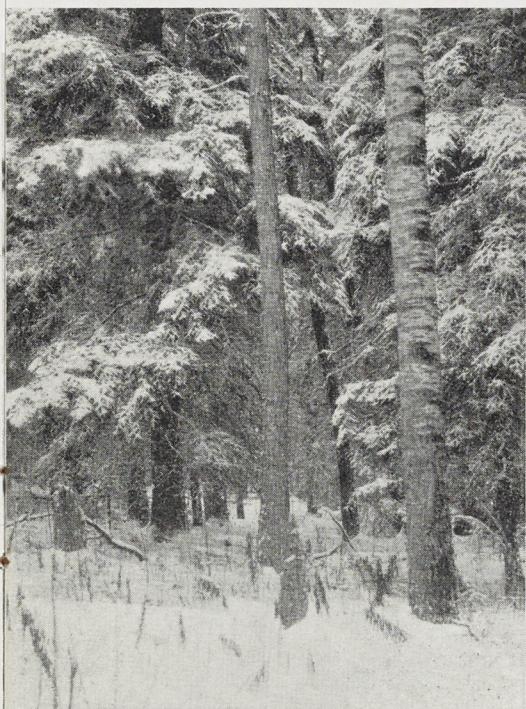


Transplanting Young Trees at Spruce Woods Nursery.

protecting their future supplies of lumber, fuel, pulpwood and other construction materials. They are protecting the livelihood of the ten thousand men at present engaged in forest industries and the livelihood of many thousands who in the future will find similar employment. They are protecting the very foundation of a great and growing fur industry that will provide employment to increasing thousands of trappers. They are protecting the timber and fuel that are so vital to the economic operation of northern mining properties. They are protecting an increasingly valuable source of public revenues. They are assisting in the proper control of northern streams and river systems and are protecting future sources of water-power. They are protecting moose, deer, caribou, game birds and wild life, generally. They are protecting the beauty of tens of thousands of northern lakes, great park areas, future recreational facilities and an ever-increasing tourist industry —truly conservation pays huge dividends.

The cutting of timber is carefully regulated and only mature timber is permitted to be taken. Careful supervision of timber berths, the re-stocking of forest areas, the operation of fully equipped nurseries and the maintenance by the province of six separate, publicly owned forest reserves totalling 3,811 square miles in extent—all have been managed and administered with the utmost care and foresight, to provide the greatest possible present use and at the same time guarantee their existence in perpetuity.

Today Manitoba supplies large quantities of spruce pulp wood and sawn lumber. Manitoba was ready to meet the tremendous overnight demand for building materials in order to house our airmen, soldiers and naval men for training purposes. The materials were available. Manitoba was ready, and conservation policies employed during previous years proved their worth.



White Spruce Thrives in Manitoba.



One of the Province's Many Picturesque Fishing Stations.

## Fishing

THE waters of Manitoba furnish a livelihood to four thousand commercial fishermen and their families. Furthermore, thousands of anglers enjoy their favourite sport every year in the province's countless lakes and streams.

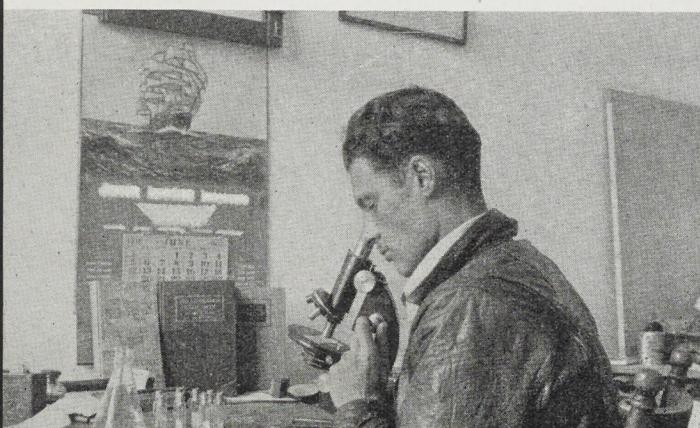
The commercial fisherman takes a large harvest of fish from our lakes and in order that these fisheries may remain productive forever, four fish hatcheries are operated by the province of Manitoba to help nature replenish the stocks of pickerel and whitefish. Pickerel hatcheries operate at Duck Bay on Lake Winnipegosis, and at Swan Creek and Ebb and Flow on Lake Manitoba. The combined hatch of these three plants in 1941 was 194,920,000 pickerel fry and for this year a similar production is expected.

On Lake Winnipeg a whitefish hatchery is operated near the mouth of the Dauphin River. Here 96,000,000 whitefish eggs were taken last

October and November from spawning fish, and from this it is expected that some 86,000,000 whitefish fry will be hatched. They will then be liberated in those clear waters of Lake Winnipeg that are so rich in fish food, and that have already become so widely known as the source of the finest and most sought after of all whitefish as well as the famous Lake Winnipeg goldeye.

For several years now an average of 6,000,000 pickerel fry have been distributed each year to approximately 30 sport fishing lakes and rivers throughout the southern part of the province, as part of the Government's programme to maintain and increase the supply of sport fish in recreational areas.

This summer there will be hatched some 52,000 speckled trout, the peer of game fish, together with 100,000 rainbow trout, a game fighter, but so constituted that it can withstand higher summer water temperatures than other trout and is thus suitable for some lakes in the southern part of the province. Both the speckled and rainbow trout will be brought along to as advanced a stage as possible before being released, after which they will be liberated in suitable lakes by late summer or early fall. This summer also a considerable number of small mouth black bass will be transferred to lakes above "53," principally to Lake Athapapuskow, in order that they may reproduce and multiply to provide in due time good sport and "frys" for northern anglers. Plans are now being prepared for the construction of a sport fish hatchery which will probably be constructed in the Whiteshell Provincial Park this coming summer. In the fall a large collection of lake trout and speckled trout eggs will be made in The Pas area to fill the hatchery troughs and produce fingerling fish which will be introduced to other lakes. The waters of the province are being conserved and the work of the hatcheries goes on at full speed.



10 Departmental Hydro-Biologist in the Laboratory of the Dauphin River Hatchery.



School of Sturgeon at Their Spawning Grounds.

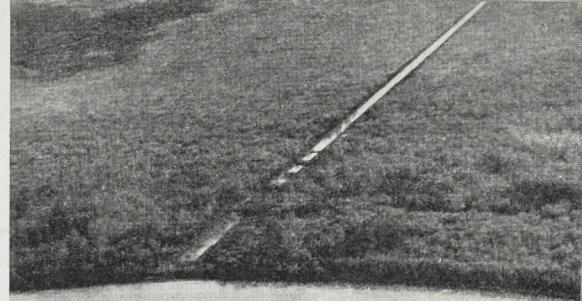
# Fur

**I**N seven short years Manitoba has doubled the value of fur production from the wild, and has almost doubled the value of its fur export. In 1941 fur production in the province broke all records, and yet the wild fur population is today far greater than it has been at any time in the past twenty-five years.

This large expansion of Manitoba's fur industry results directly from the rapid rise of fur farming and the conservation and utilization of water in the wild. Vast marsh areas depleted of fur because of drought were changed by scientific water engineering into water-tight basins which held the life-giving water in the marshes at levels calculated to satisfy wild life, and hundreds of thousands of acres in other parts of the province are today in various stages of development.

These vast rehabilitated marshlands are opening up a new era in Manitoba's fur industry, but they are doing more. Ducks and geese are flocking to these areas, and they are becoming waterfowl breeding grounds of the finest calibre, amongst the best protected and most extensive on the continent.

One hundred and thirty-four thousand acres of marshland in the Summerberry area have been in production for two years. The Two-Island area immediately north of the Summerberry consists of 160,000



Canal at Red Rock Feeds Water into the Marsh for Fur-bearers.

acres; and Connolly Lake project—100,000 acres; the Saskeram and Pasquia projects near The Pas—100,000 acres; and the Fisher River Block—530,000 acres. In all the total area now in actual development would be greater than one million acres in extent.

In addition to the Public Rehabilitation Blocks, individual trappers operating under a registered trapline system are building dams and canals, which are not only increasing the fur population, but are propagating wild life of every kind.



Game Wardens Are on Constant Patrol.



Water Conservation Measures have Rehabilitated Fur.



Manitoba's Beaver Population Is on the Increase.

# *Water for the Wild*

**M**ANITOBA is rich in wild life. Commercially, the province produced fur and fish to the value of more than six million dollars in 1941 and the people of Manitoba enjoy hundreds of varieties of wild life.

Hundreds of lakes and streams teeming with fish, millions upon millions of ducks and geese flying along one of the continent's principal flyways, rich fur-bearing marshlands, grouse and prairie chicken on the plains, big game stalking majestically through the forests—these are some of the reasons why life is made enjoyable by nature in Manitoba.

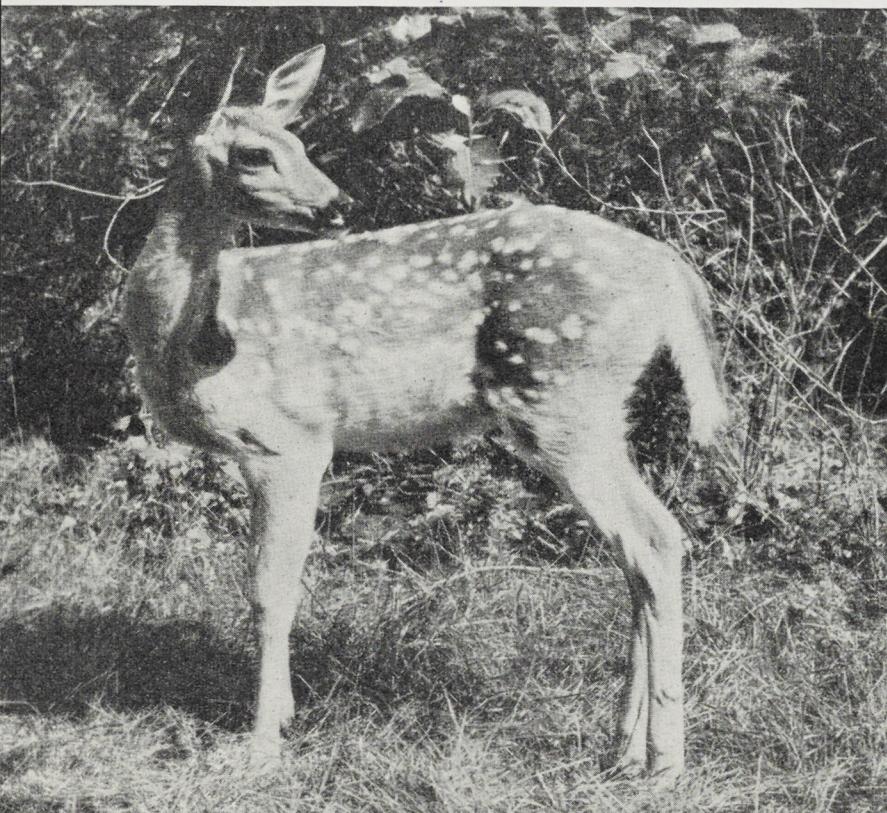
From its inception the Department of Mines and Natural Resources has been following an aggressive programme of wild life conservation and protection. Much has been accomplished through the protection of our native game birds, and big game. Large marsh areas have been rehabilitated for the benefit of fur and migratory waterfowl. Hundreds of millions of fish fry are planted each

year in the commercial and sport fishing waters of the province.

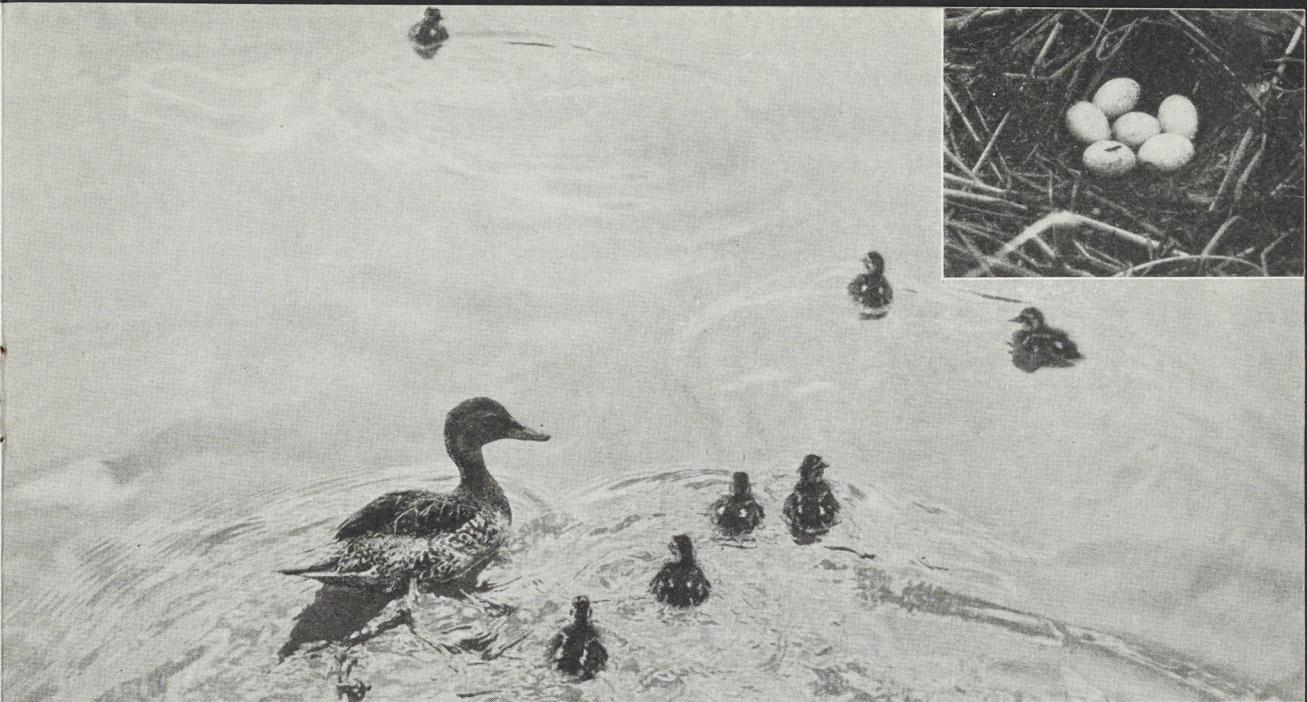
In following this programme of wild life conservation, the Government has enjoyed the closest possible co-operation from sportsmen, naturalists, boards of trade, public-spirited individuals and organizations. The Manitoba Game and Fish Association has given invaluable assistance and has done a great deal to bring about increased public consciousness of the value of our wild life resources. For years the members of this organization have contributed substantially to the protection of wild life in Manitoba. They have kept a watchful eye on game conditions at all times and have made their valuable findings available to the Department. The co-operative and constructive outlook of this public-spirited group of sportsmen is keenly appreciated by the Department.

Ducks Unlimited (Canada) has done much to create a great interest in the protection of migratory waterfowl. This organization, in addition to other smaller projects, constructed two dams on the Big Grass Marsh in 1938, the Bracken Dam on the Saskaram River in 1940, and during 1941 assisted in the construction of the Knapp Dam on the Pasquia River near The Pas. Naturalists engaged by Ducks Unlimited have done work of considerable value in the compilation of estimates of duck population and estimates regarding losses through fire and predators. Our congratulations to Ducks Unlimited and our cordial greetings to their generous sponsors in the United States.

Individual sportsmen and hunting clubs are contributing substantially toward the conservation of game and fish. The Portage Gun Club and the Lakeview Club are developing small water projects for the protection of game birds. One Winnipeg sportsman alone has invested more than one thousand dollars to build a dam and to provide protection for waterfowl in the Netley Marsh.



Deer Are More Plentiful Today in Manitoba than for a Generation.



Ducks of Every Variety and Species Find Excellent Protection and Good Breeding Grounds in Manitoba.



Canada Geese at Grant's Lake, Manitoba. One of the most popular Game Birds in America.

# Water for Pleasure

IN addition to its manifold industrial and agricultural uses for the comfort and convenience of man, water, in its various natural forms can add immeasurably to his enjoyment.

The people of Manitoba are singularly fortunate that water flows from every side and gathers in the countless thousands of lakes and streams within its boundaries. This vast supply roars



Manitoba offers every variety of aquatic sport to vacationists.

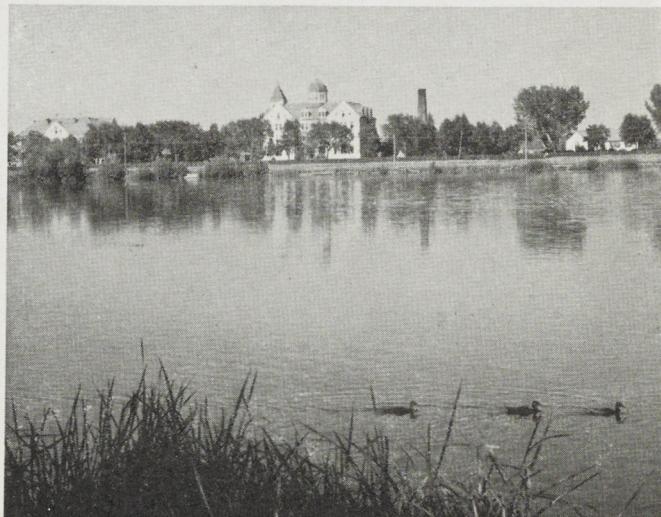
across the territorial limits of the province in the Winnipeg River, races and tumbles toward Lake Winnipeg in a turbulent torrent, resting briefly on the way in peaceful Lac du Bonnet, a popular resort in eastern Manitoba. The Red and Assiniboine in marked contrast glide gently across the boundary, silently weaving a twisting path.

Great torrents roar in Manitoba, little streams trickle quietly over the pebbles. The highways verge on tiny lakes of pure blue, then along the sandy shores of Lake Winnipeg deep and wide. Boats, from canoe to steamers excursioning to Norway House, command the lakes.

Lakes of azure blue, one after another, offer the canoeist the symbol of peace and quietude in the Whiteshell as he moves silently on to marvel at a maze of spruce and poplar standing proudly before a background curtain of drifting snow-white clouds.

Man, in a sanctuary of natural peace, casts for speckled beauties or drops his line deep for lurking lake trout. He can enjoy the scenery from modern highways, swim and bask in the sun at wide sandy beaches. His craft, be it canoe, sail boat or launch can cleave the water for the finest vacation which can be offered, far from the madding crowd, far from the din of offices and shops, far from the heated summer pavements.

The waters of the North offer every form of recreation. Lake trout fishing is supreme in Lakes Atikameg and Athapapuskow. Discerning sportsmen



Crescent Lake at Portage la Prairie typifies Manitoba's picturesque countryside.

obtain what has been called the finest goose-shooting in the world in the vicinity of The Pas.

Farther North the barren-land caribou herds stalk, while trout and arctic grayling are ready to challenge the angler in many streams.

In Manitoba nature provides her most curing medicine—rest, where a man can be alone to rest lazily, fish, hunt and enjoy magnificent scenery to his heart's content. Truly, Manitoba is the unspoiled playground of a continent.

### Riding Mountain National Park

Rising up 2,000 feet out of the prairies, Riding Mountain National Park is the second most popular national park in Canada.

Manitoba is proud in the possession of this popular playground of the prairies. Riding Mountain National Park is a unique centre of recreation in the heart of the province. A plateau, 1,000 square miles in extent rises up on the edge of the prairie and from its top the lofty evergreens seem

to summon the people of the western plains to come and find rest and relaxation.

Beautiful scenic highways and railroad routes link the Park with every section of the province. Last year visitors from every part of the continent enjoyed its luxurious grandeur, its fully modern conveniences and tourist camps, its tournament golf course and tennis courts, its sparkling Clear Lake and eighty miles of winding roads.

### The Whiteshell

Manitoba offers too, a completely different type of playground on the eastern boundary. The Whiteshell Provincial Park, less than three hours' drive from the capital City of Winnipeg on the paved Trans-Canada Highway, is an unspoiled rugged paradise over 1,000 square miles in extent. Dotted with crystal-clear lakes in coloured rock country, and richly carpeted by nature, the Whiteshell is the epitome of quiet relaxation.

Tourist accommodation is excellent where West Hawk Lake comes down to meet the highway.

Swimming and boating predominate at this point. The waters of the Whiteshell link themselves together in a seemingly endless chain of fascinating canoe routes into the heart of unspoiled nature.

Fishing is excellent in many lakes and streams while moose, deer, bear and caribou roam the pre-cambrian forest.

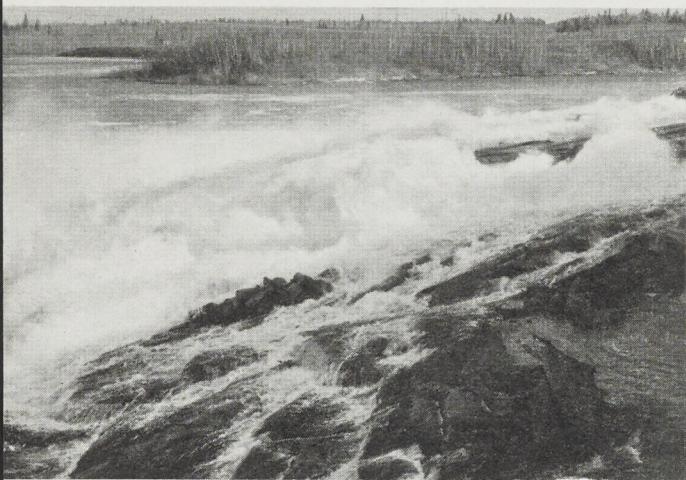
Manitoba protects these parks and the conservation measures effectively administered have built these natural monuments to the far-sightedness of a progressive people.



A prominent Minneapolis newspaperman and sportsman is proud of this square-tailed speckled beauty from the Nelson River. This photograph won first prize in the recent Travel and Publicity Bureau contest.



# Water in Industry

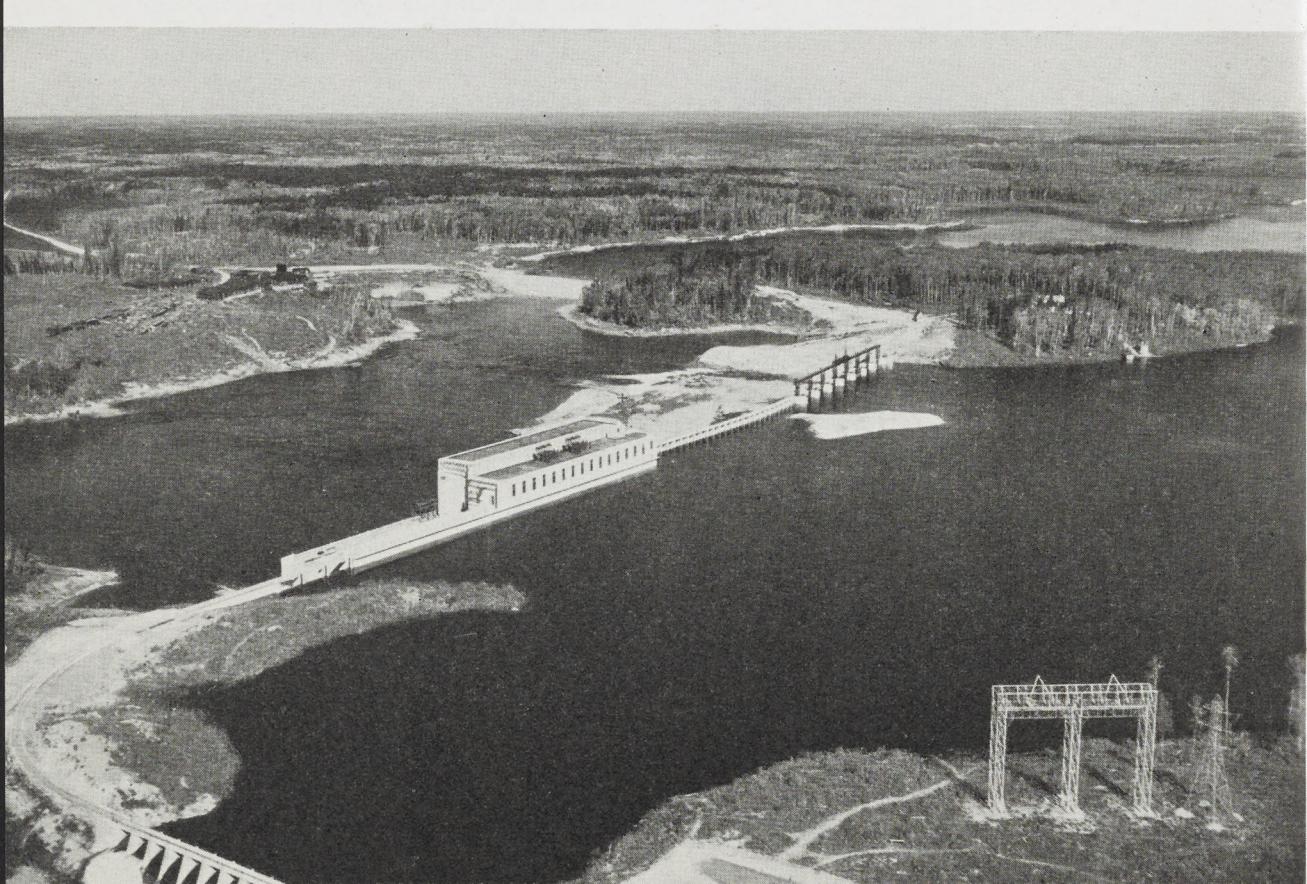


The Winnipeg River below the Winnipeg Electric Plant at Great Falls.

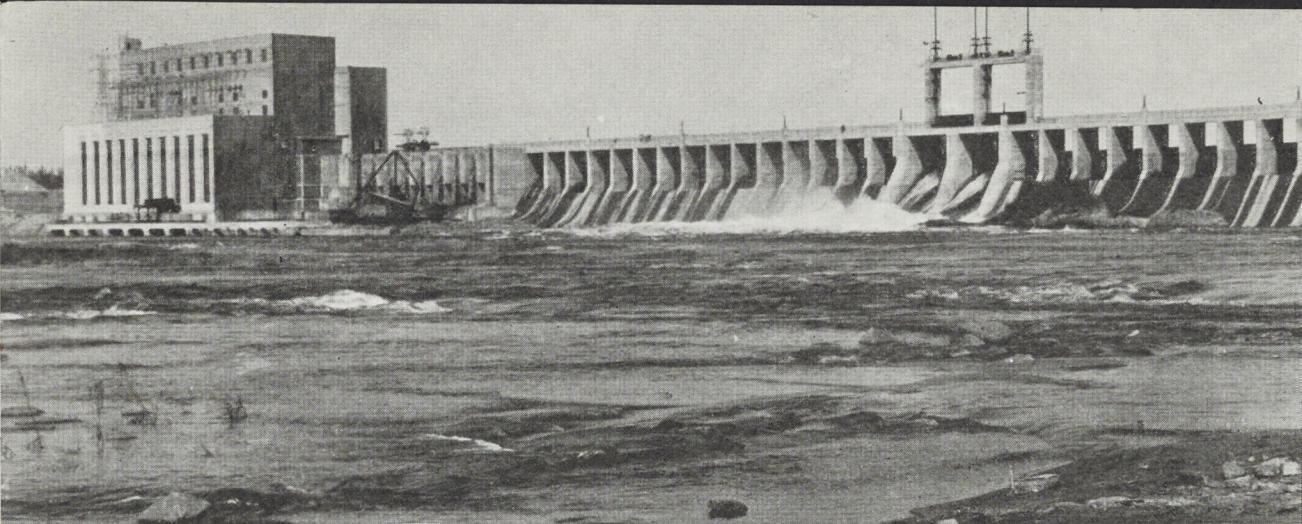
OF all the natural resources, remarkable as much for variety as their extent, none is of more permanent value than the water-power resources of the province.

The use of power has extended into almost every field of human effort and is now an essential factor in the production, preparation and marketing of agricultural and other natural products, in the operation of all the various types of manufacturing industries, of public utilities and transportation systems, in mining, in chemical and metallurgical processes, and in supplying the varied conveniences and comforts of community life.

Manitoba is rich in water-power resources. The estimated undeveloped power resources total over 4,000,000 horse-power at ordinary minimum flow. The largest of these power sites are located on the Nelson, the Churchill, the Saskatchewan, Dauphin and Winnipeg rivers. From a million to a million and a half horse-power of water-power lies within reasonable transmission distance of most of the present centres of population.



Aerial View of the City of Winnipeg Hydro-Electric System's Slave Falls Power Plant.



Seven Sisters Falls Power Plant owned by the Winnipeg Electric Company.

In the early pioneer days water wheels were installed in some of the smaller streams to operate grist mills and flour mills but most of these have long since disappeared. The first hydro-electric installation was built on the Minnedosa River in 1900 to supply power to the City of Brandon. This plant of 1,000 horse-power was used as an auxiliary to the Brandon steam plant and has since been abandoned.

In 1906 the Winnipeg Electric Company completed its Pinawa hydro-electric plant on the Pinawa channel, a branch of the Winnipeg River. This plant has a present installation of 37,800 horse-power.

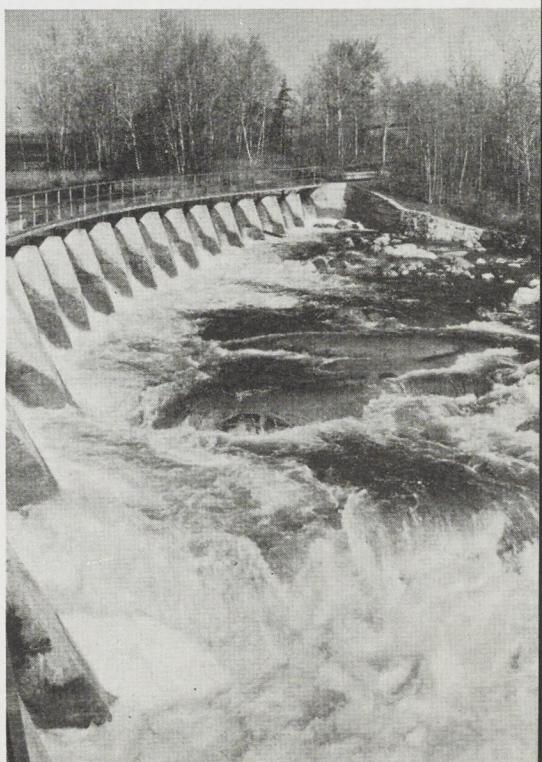
The second hydro-electric development on the Winnipeg River was that of the City of Winnipeg Hydro at Pointe du Bois, with a present capacity of 105,000 horse-power.

These developments on the Winnipeg River were followed by the Great Falls plant of 168,000 horse-power completed in 1928, the Seven Sisters plant designed for a total capacity of 225,000 horse-power of which 60,000 horse-power has been installed, both of which are owned by the Winnipeg Electric Company, and the Slave Falls Plant of the City Hydro, designed for a total capacity of 100,000 horse-power, of which 48,000 horse-power has been installed. These hydro-electric plants, with an installation of 420,000 horse-power and an ultimate capacity of 600,000 horse-power, serve through their connecting transmission lines and distribution systems, the industrial, commercial and domestic power requirements of Greater Winnipeg, the railway shops and industries of Transcona, the power required in the Central Manitoba mining district and the pulp and paper mills at Pine Falls, Manitoba and at Kenora, Ontario. In addition, these plants supply electric power to the Manitoba Power Commission, and the Commission, through an extensive system of transmission lines 2,000 miles long, in turn supplies electric power to one hundred and fifty cities, towns and villages in southern and western Manitoba, and in wartime to a host of miniature military cities, training camps for airmen and soldiers and war industries throughout the province.

In the northern part of the province, the Gods Lake Gold Mine is operated by hydro-electric power generated by a water-power plant located at Kanuchuan Rapids, some 40

miles to the south. In the north-western part of the province the copper-zinc mines at Flin Flon and Sherridon are also operated by hydro-electric power developed on the Churchill River in the province of Saskatchewan.

Raw materials and cheap power provide a firm foundation for rapid industrial expansion—Manitoba is rich in both.

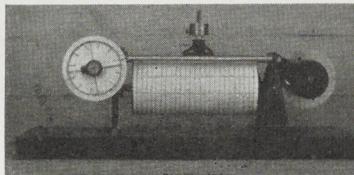


City Hydro Power Development at Pointe Du Bois.

## *Behind the Scenes in Water Conservation*

A SMALL aluminum cylinder, elliptical in shape, floats on the edge of the Saskatchewan River where it flows into Cedar Lake. Every variation in the level of the river is recorded on an automatic gauge directly above the cylinder. Year after year the automatic machine marks on a long roll of paper the day by day record of the water levels. Invaluable information is being obtained so that in future years these records will tell us how much water could be stored in Lakes Winnipegosis and Manitoba, and furnish accurate data upon which conservation programmes may be developed.

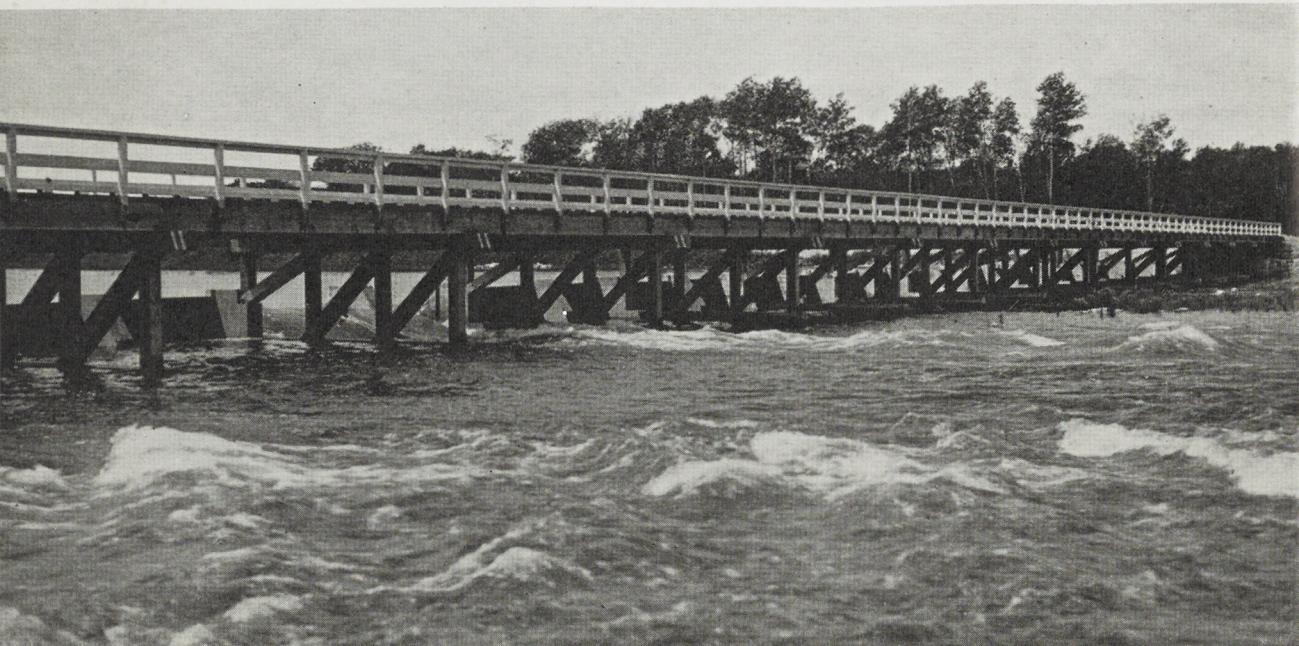
As it is necessary for the farmer to know the amount of land available for crop, or a transportation company to know the quantity of goods to be hauled during any period, so also is it necessary that engineers know the quantity of water which should be passed through a control dam or the amount of water available for any of its various uses on any watershed. By the use of the instrument described above, the recording mechanism of which is illustrated on this page, information of vital importance for the scientific planning of water conservation projects is being obtained.



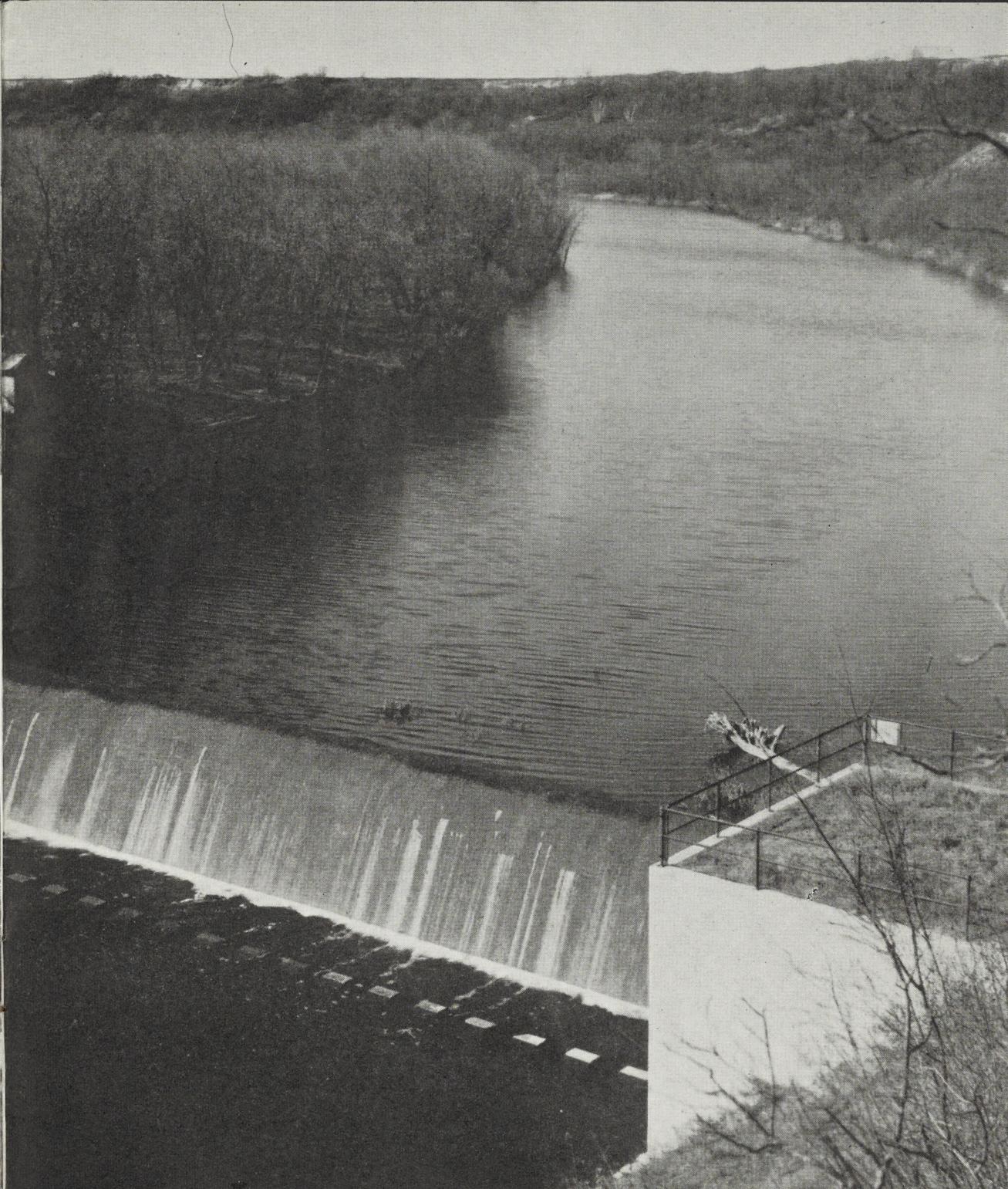
By the use of other instruments on Lake Winnipegosis, Lake Dauphin, Lake Manitoba and Lake Winnipeg, a constant check of water levels on these important lakes is kept. This information is analyzed, recorded and charted daily by the Water Resources Branch of the Province so that engineers or others interested may determine at a glance the exact elevation of any of our great lakes for any particular day, or month in any year.

On the Assiniboine, Souris, Red, Saskatchewan, and Winnipeg rivers other measurements are taken to determine the quantity of water flowing at all times. In connection with important water-power rivers such as the Winnipeg, upon which great industries and large communities depend, hydro metric measurements are particularly important. Watershed and snow surveys are constantly being made in order that control dams may be operated to provide an assured supply of power at all times.

Great post-war projects must be planned before the men and materials will be available at the end of the war. Wherever possible, the information necessary to the preparation of these plans is being obtained well in advance.



The Fairford Dam where the Flow from Lake Manitoba into Lake Winnipeg is Controlled.



Water Over the Dam—Souris River at Wawanesa.

## Note and Comment

The Annual Dinner of the Manitoba Game and Fish Association will be held at the Royal Alexandra Hotel, Winnipeg, the evening of March 27th. This is the outstanding event of the year for many hundreds of Manitoba sportsmen.

\* \* \*

The Seventh Annual North American Wildlife Conference will this year be held on April 8th, 9th, and 10th at the Royal York Hotel in Toronto. This is the first time this conference has been held in Canada. It is expected that nearly a thousand delegates will attend from all parts of the United States and Canada.

A very comprehensive programme has been planned to include subjects relating to game, fish, forestry resources, soil, water resources and other matters of importance in conservation of wild life.

The programme includes also a paper on "Fur Rehabilitation in northern Manitoba."

It is hoped that the province of Manitoba and the city of Winnipeg may have the opportunity of being hosts to this important gathering in the near future.

### To Our American Visitors

The Public Relations Section, Foreign Exchange Control Board, Ottawa, wishes to bring to the attention of the United States visitors to Canada this year that:

"The visitor may bring any amount of money into Canada, and may take out any unexpended portion without permit or declaration of any kind. It is not necessary for him to exchange his U.S. dollars into Canadian upon entering Canada. He may spend his U.S. dollars in Canada as his needs arise, just as he does at home. Canadian law requires that he be paid the full official premium everywhere in Canada."



This year Manitoba farmers are planting 400 feedplots for next winter protection of Prairie Chicken and other Upland Game Birds.

### Wild Fowl Feedplots

Last summer 117 Manitoba farmers co-operated wholeheartedly in the Government's wild life programme by planting winter feed plots for upland game birds. Seed and general directions were supplied by the department. As a result of the information obtained from this experiment, the programme will be expanded this year when 400 feed plots will be planted. A large number of constructive suggestions have been received from the farmers who had feed plots last year and many of these will be tried out this season. The department and the sportsmen of Manitoba are indebted to the farmers who have made this project possible.

Manitoba's own native Prairie Chicken is the finest upland game bird to be found anywhere. In addition we have the Hungarians and Ring-Necks, both of which have been increasing rapidly in numbers during the past few years. The people of Manitoba are determined that these fine birds receive the care to which their quality entitles them.

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### Photographic Contest Prize Winners

The large number of photographs entered in the Travel and Publicity Bureau's recent contest have been judged and prizes have been awarded to the successful entrants.

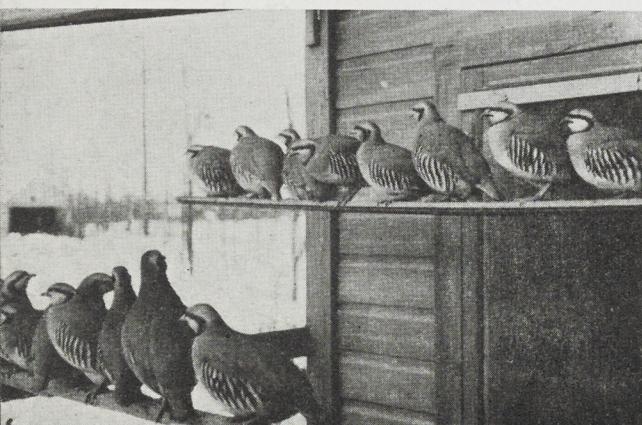
In the Sport Fishing Class, first prize of \$25.00 went to E. H. Leitte, Minneapolis, Minnesota.

First prize in the Game Bird Hunting Class was carried off by another Minneapolis man, D. Solomon.

P. W. Hunter, of St. Vital, Manitoba, won first prize in the Big Game Hunting Class.

Out of the sixteen prizes, United States visitors carried off seven—almost one half.

The Travel and Publicity Bureau extends its thanks to all those who entered photographs in the contest and it is hoped that those who did not win prizes will be given another opportunity when the next contest will be held.



20 The Chukker Partridge Is a Thriving Newcomer to Manitoba.

# Water Conservation...Present and Future

*The secret fountains to follow up, waters withdrawn  
to restore to the mouth,  
And gather the floods as in a cup, and pour them  
again at a city's drouth.—KIPLING.*

The preceding pages have been intended to provide a very brief outline of what has been accomplished in the way of water development in Manitoba during recent years. Secure sources of water supply have been established on more than 5,000 Manitoba farms. By the construction of dams the waters of many streams and rivers are being conserved for use throughout the year. Hundreds of farmers are conserving water on their own farms; hundreds of trappers have built dams and channels on their trap lines; sportsmen and hunting clubs have improved their shooting areas; thousands of holiday seekers and tourists today enjoy the beauty of Manitoba's many resorts—beauty which has been made secure under a sound policy of conservation.

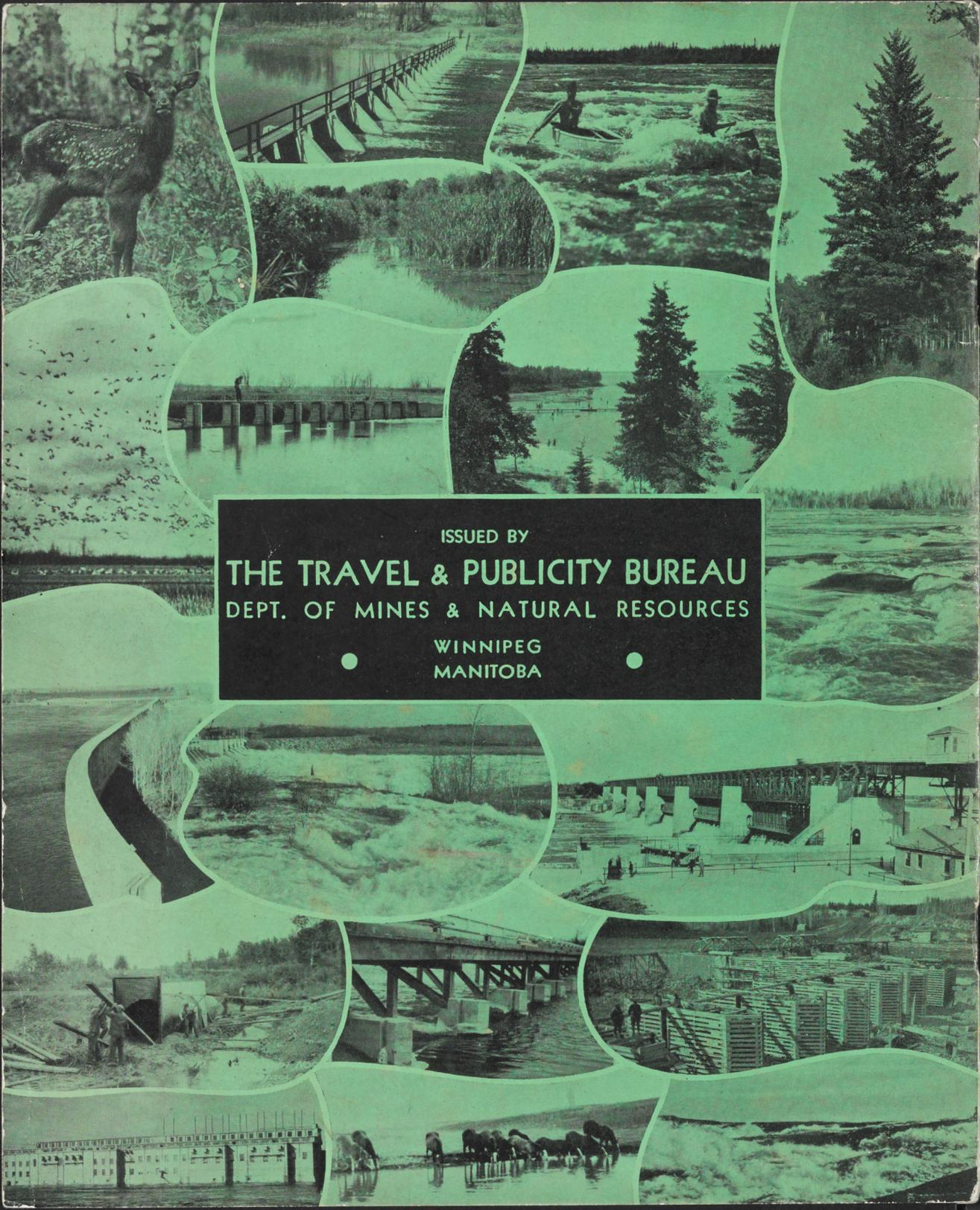
Through control and development great power rivers have been made to turn the wheels of industry and to provide hydro-electric energy to thousands of Manitoba homes at low cost. Hundreds of thousands of acres of dried-out marsh lands have been restored to provide ideal fur and waterfowl breeding conditions.

These works have encouraged the diversification of agriculture: farm income has been made more

secure: the amenities of rural and urban life have been improved: cheap power has been made available to provide new industries and new employment: hundreds of trappers have been assured of secure sources of livelihood: the forest fire menace has been reduced: fur, fish, waterfowl, and other forms of wild life are definitely on the increase and are receiving constant protection.

But what has been accomplished successfully up to the present time is only an indication of what will be done in the future. Every experiment and every experience of the recent past guides the formulation of a still more comprehensive water development programme which will play an important role in Manitoba's future. Speaking before the legislature on March 16, 1942, the Honourable John Bracken, Premier of Manitoba, outlined comprehensive plans for post-war reconstruction and referred to the diversion of the Saskatchewan River from Cedar Lake, through Lakes Winnipegosis and Manitoba, thence via the Dauphin River to Lake Winnipeg, as one of the possible larger post-war projects. In April, 1941, Mr. Bracken gave an audience at The Pas a preview of the government's plans for Northern conservation, when he predicted that through water development and constructive biological research, the fur production of northern Manitoba could be and would be increased ten fold.





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